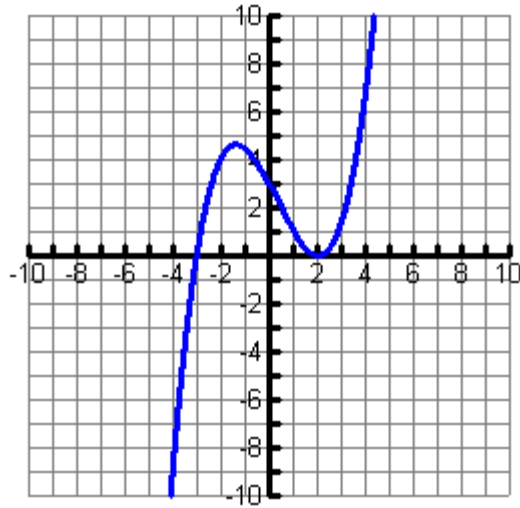


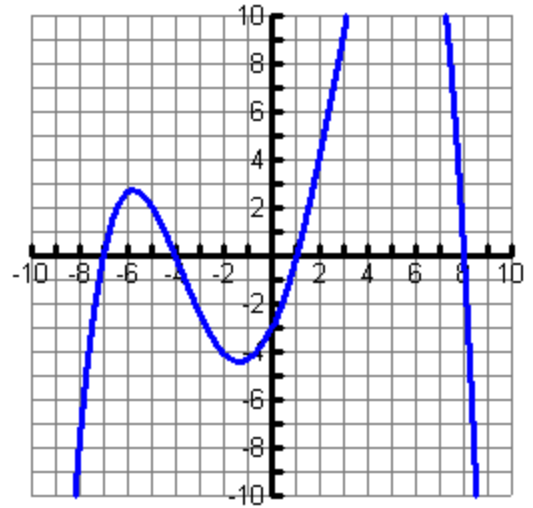
Use the graphs below to do the following:

- List the real solutions
- Write the polynomial equation of least degree in standard form

1.



2.



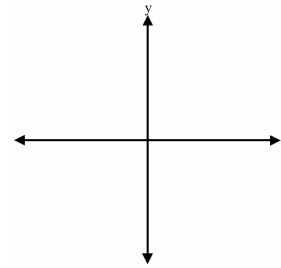
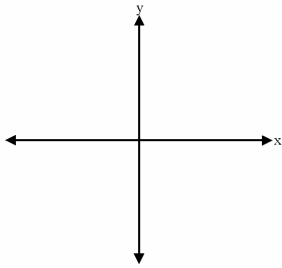
3. Write a polynomial of least degree for the set of roots. How many times does the graph of the related function cross the  $x$ -axis?

$-5, 4, 3i, -3i$

State the number of roots of each equation. Then find the roots by factoring or using the quadratic formula and sketch a graph of the related function.

4.  $4x^3 - 16x^2 - 9x + 36 = 0$

5.  $3x^2 - 2x - 8 = 0$



Let  $f(x) = x^3 + 3x^2 - 4$  and  $g(x) = -2x^2 + x - 3$ . Find each of the following:

6.  $f(x) - g(x)$

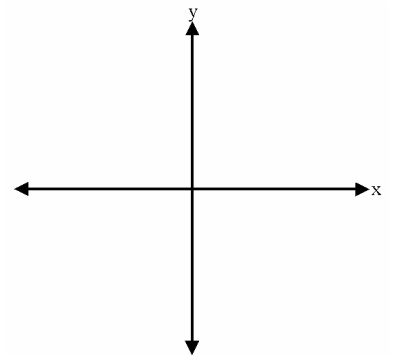
7.  $g(f(x))$

8. a. List the possible rational roots of  $2x^4 - 9x^3 - 16x^2 - 9x - 18$ .

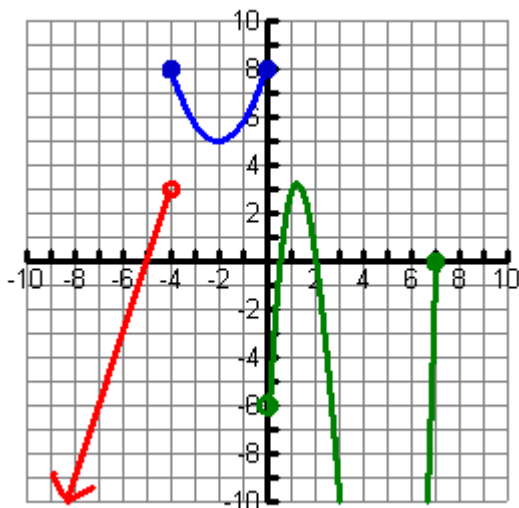
b. Test the possible roots using synthetic division. For each possible root that is a zero of the function, write the corresponding factor.

c. Write the polynomial as a product of its factors. The final factor may have to be solved to find the remaining zeros.

d. Sketch a graph of the polynomial.



Write the piecewise function from the graph given.

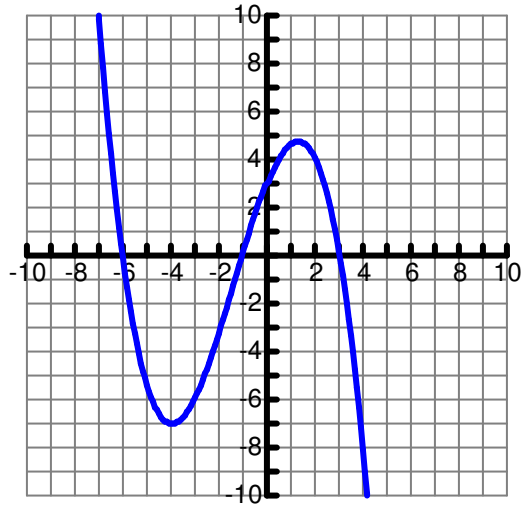


$f(x) = \left\{ \right.$

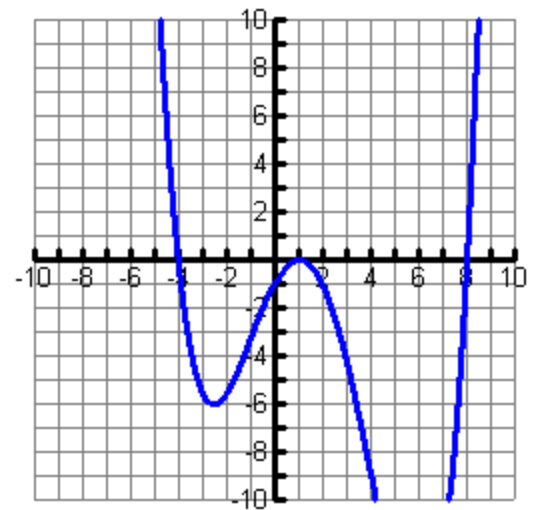
Use the graphs below to do the following:

- List the real solutions
- Write the polynomial equation of least degree in standard form.

9.



10.



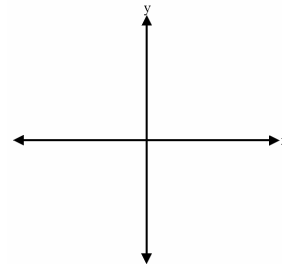
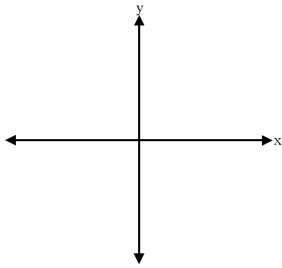
11. Write a polynomial of least degree for the set of roots? How many times does the graph of the related function cross the  $x$ -axis?

$$-5, 3, 5, \frac{1}{2}i, -\frac{1}{2}i$$

State the number of roots of each equation. Then find the roots by factoring or using the quadratic formula and sketch a graph of the related function.

12.  $x^3 + 2x^2 + 4x + 8 = 0$

13.  $5x^2 + 2x - 7 = 0$



Let  $f(x) = 2x^3 - 2x^2 - 1$  and  $g(x) = x^2 - x + 7$ . Find each of the following:

14.  $f(x) \cdot g(x)$

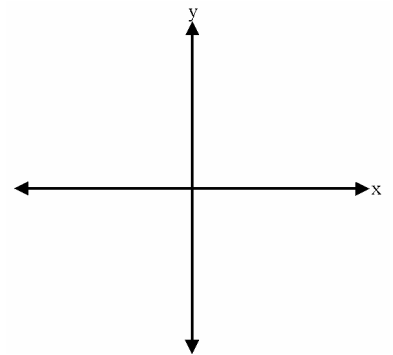
15.  $g(f(x))$

16. a. List the possible rational roots of  $y = 5x^3 - 34x^2 + 69x - 36$ .

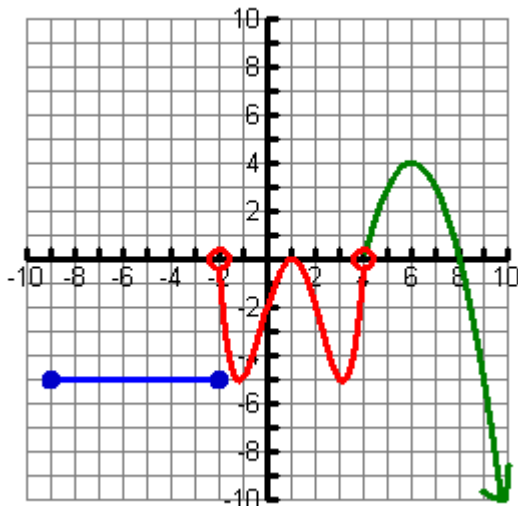
b. Test the possible roots using synthetic division. For each possible root that is a zero of the function, write the corresponding factor.

c. Write the polynomial as a product of its factors. The final factor may have to be solved to find the remaining zeros.

d. Sketch a graph of the polynomial.



Write the piecewise function from the graph given.



$f(x) = \left\{ \right.$